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EXAMINER	
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2629	

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Please find below and/or attached an Office communication concerning this application or proceeding.

The time period for reply, if any, is set in the attached communication.

Office Action Summary	Application No.	Applicant(s)	
	10/699,142	PARK ET AL.	
	Examiner	Art Unit	
	JEFF PIZIALI	2629	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

1)☒ Responsive to communication(s) filed on *25 February 2009 and 10 November 2008*.

2a)☐ This action is **FINAL**. 2b)☒ This action is non-final.

3)☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

4)☒ Claim(s) *1-3,5-11,15-17,20-25 and 38-40* is/are pending in the application.

4a) Of the above claim(s) *38-40* is/are withdrawn from consideration.

5)☐ Claim(s) _____ is/are allowed.

6)☒ Claim(s) *1-3,5-11,15-17 and 20-25* is/are rejected.

7)☐ Claim(s) _____ is/are objected to.

8)☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

9)☐ The specification is objected to by the Examiner.

10)☒ The drawing(s) filed on *30 October 2003* is/are: a)☒ accepted or b)☐ objected to by the Examiner.

Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).

Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).

11)☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

12)☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).

a)☒ All b)☐ Some * c)☐ None of:

1.☒ Certified copies of the priority documents have been received.

2.☐ Certified copies of the priority documents have been received in Application No. _____.

3.☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

1) ☒ Notice of References Cited (PTO-892)
2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
3) ☐ Information Disclosure Statement(s) (PTO/SB/08) Paper No(s)/Mail Date _____.
4) ☐ Interview Summary (PTO-413) Paper No(s)/Mail Date _____.
5) ☐ Notice of Informal Patent Application
6) ☐ Other: _____.

DETAILED ACTION

Priority

1. Receipt is acknowledged of papers submitted under 35 U.S.C. 119(a)-(d), which papers have been placed of record in the file.

Drawings

2. The drawings have not been checked to the extent necessary to determine the presence of all possible minor errors. Applicant's cooperation is requested in correcting any errors of which applicant may become aware in the figures.

Specification

3. The specification has not been checked to the extent necessary to determine the presence of all possible minor errors. Applicant's cooperation is requested in correcting any errors of which applicant may become aware in the specification.

Election/Restrictions

4. ***Applicant's election without traverse of Invention I (Claims 1-3, 5-11, 15-17, and 20-25)*** in the reply filed on *25 February 2009* is acknowledged and appreciated.

5. ***Claims 38-40 are withdrawn*** from further consideration pursuant to 37 CFR 1.142(b) as being drawn to a nonelected invention, there being no allowable generic or linking claim. Election was made **without** traverse in the reply filed on *25 February 2009*.

6. Applicant is reminded that upon the cancellation of claims to a non-elected invention, the inventorship must be amended in compliance with 37 CFR 1.48(b) if one or more of the currently named inventors is no longer an inventor of at least one claim remaining in the application. Any amendment of inventorship must be accompanied by a request under 37 CFR 1.48(b) and by the fee required under 37 CFR 1.17(i).

Claim Rejections - 35 USC § 112

7. The following is a quotation of the second paragraph of 35 U.S.C. 112:

> The specification shall conclude with one or more claims particularly pointing out and distinctly claiming the subject matter which the applicant regards as his invention.

8. *Claims 2-3 and 20-22* are rejected under 35 U.S.C. 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention.

9. Claim 2 recites the limitation "***the liquid crystal display device***" (*line 1*). There is insufficient antecedent basis for this limitation in the claim.

10. Claim 20 recites the limitation "***the second switching device***" (*line 3*). There is insufficient antecedent basis for this limitation in the claim.

11. The remaining claims are rejected under 35 U.S.C. 112, second paragraph, as being dependent upon rejected base claims.

12. The claims are rejected under 35 U.S.C. 112, second paragraph, as being indefinite.

As a courtesy to the Applicant, the examiner has attempted to also make rejections over prior art -- based on the examiner's best guess interpretations of the invention that the Applicant is intending to claim.

However, the indefinite nature of the claimed subject matter naturally hinders the Office's ability to search and examine the application.

Any instantly distinguishing features and subject matter that the Applicant considers to be absent from the cited prior art is more than likely a result of the indefinite nature of the claims.

The Applicant is respectfully requested to correct the indefinite nature of the claims, which should going forward result in a more precise search and examination.

Claim Rejections - 35 USC § 102

13. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

> A person shall be entitled to a patent unless –
>
> (e) the invention was described in (1) an application for patent, published under section 122(b), by another filed in the United States before the invention by the applicant for patent or (2) a patent granted on an application for patent by another filed in the United States before the invention by the applicant for patent, except that an international application filed under the treaty defined in section 351(a) shall have the effects for purposes of this subsection of an application filed in the United States only if the international application designated the United States and was published under Article 21(2) of such treaty in the English language.

14. *Claims 1-3* are rejected under 35 U.S.C. 102(e) as being anticipated by ***Abileah et al (US 7,280,102 B2)***.

Regarding claim 1, ***Abileah*** discloses a liquid crystal display panel [*e.g., Fig. 1: 50*] comprising:

a first substrate [*e.g., Fig. 1: 61*] including

a plurality of pixels [*e.g., Fig. 13: Clc*] and

a plurality of sensing parts [*e.g., Fig. 13: PhotoTFT, ReadoutTFT, Cst2*],

each of the sensing parts having a light-sensitive switching device [*e.g., Fig. 13: PhotoTFT*] which is directly responsive to light and

each of the sensing parts generating an output signal [*e.g., Fig. 13: Readout*] including a location information [*e.g., touch location information*] in response to an input signal,

the location information indicating a location where the input signal is inputted;

a second substrate [*e.g., Fig. 1: 63*] connected to the first substrate,

the second substrate facing the first substrate; and

a liquid crystal layer [*e.g., Fig. 1: 64*] interposed between the first substrate and the second substrate (*see the entire document, including Column 3, Lines 18-67; Column 5, Line 4 - Column 8, Line 15; and Column 12, Line 62 - Column 14, Line 53*).

Regarding claim 2, ***Abileah*** discloses the input signal corresponds to an incident light,

the incident light passing through the second substrate to reach one of the plurality of sensing parts, and

the one of the plurality of sensing parts outputting an analog signal [*e.g., Fig. 13: Readout*] in response to the incident light (*see the entire document, including Fig. 7; Column 6, Line 26 - Column 8, Line 15*).

Regarding claim 3, ***Abileah*** discloses the incident light is an infrared light [*e.g., Fig. 24: IR LED*] (*see the entire document, including Fig. 7; Column 18, Line 54 - Column 19, Line 12*).

Claim Rejections - 35 USC § 103

15. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

> (a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negatived by the manner in which the invention was made.

16. This application currently names joint inventors. In considering patentability of the claims under 35 U.S.C. 103(a), the examiner presumes that the subject matter of the various claims was commonly owned at the time any inventions covered therein were made absent any evidence to the contrary. Applicant is advised of the obligation under 37 CFR 1.56 to point out the inventor and invention dates of each claim that was not commonly owned at the time a later invention was made in order for the examiner to consider the applicability of 35 U.S.C. 103(c) and potential 35 U.S.C. 102(e), (f) or (g) prior art under 35 U.S.C. 103(a).

17. *Claims 1-3, 5-11, 15-17, and 20-25* are rejected under 35 U.S.C. 103(a) as being unpatentable over ***Abileah et al (US 7,280,102 B2)*** in view of ***Bergquist (US 7,184,009 B2)***.

Regarding claims 1-3, should it be shown ***Abileah*** teaches the claimed "*output signal*" subject matter with insufficient specificity:

Bergquist discloses a liquid crystal display panel [*e.g., Figs. 2 & 4*] comprising:

a first substrate [*e.g., Fig. 4: 103*] including

a plurality of pixels [*e.g., Fig. 5: 23*] and

a plurality of sensing parts [*e.g., Fig. 5: 114*],

each of the sensing parts having a light-sensitive switching device [*e.g., Fig. 13: phototransistor*] which is directly responsive to light and

each of the sensing parts generating an output signal [*e.g., Fig. 6: via 134*] including a location information [*e.g., touch location information*] in response to an input signal,

the location information indicating a location where the input signal is inputted;

a second substrate connected to the first substrate,

the second substrate facing the first substrate; and

a liquid crystal layer interposed between the first substrate and the second substrate (*see the entire document, including Column 2, Lines 20-56 and Column 4, Line 56 - Column 9, Line 37*).

Abileah and ***Bergquist*** are analogous art, because they are from the shared inventive field of touch and light sensitive liquid crystal displays using phototransistors.

Therefore, it would have been obvious to one having ordinary skill in the art at the time of invention to use ***Bergquist's*** analog-to-digital conversion technique [***Bergquist****: Fig. 6: via*

134] on ***Abileah's*** analog readout data prior to being sent to the processor [***Abileah****: 412 output signals to the processor*], so as to transform the location information into a format suitable for processing.

Regarding claim 5, this claim is rejected by the reasoning applied in rejecting claims 1 and 2; furthermore, ***Abileah*** discloses a liquid crystal display device [*e.g., Fig. 15*] comprising:

a liquid crystal display panel [*e.g., Fig. 1: 50*] including

a plurality of pixels [*e.g., Fig. 13: Clc*] and

a plurality of sensing parts [*e.g., Fig. 13: PhotoTFT, ReadoutTFT, Cst2*],

each of the sensing parts having a light-sensitive switching device [*e.g., Fig. 13: PhotoTFT*] which is directly responsive to light and

each of the sensing parts generating an analog signal [*e.g., Fig. 13: Readout*] including a location information [*e.g., touch location information*] in response to an incident light,

the location information indicating a location where the light enters; and

a control part [*e.g., Fig. 13: 412*] receiving the analog signal and transforming [*e.g., Fig. 13: processor*] the analog signal,

the liquid crystal display device being controlled in response to the signal (*see the entire document, including Column 3, Lines 18-67; Column 5, Line 4 - Column 8, Line 15; and Column 12, Line 62 - Column 14, Line 53*).

Although ***Abileah's*** readout data signals would arguably need to be converted into a digital format for processing by the processor -- and doing so would have been well known and

commonly understood at the time of invention -- ***Abileah*** does not appear to expressly disclose analog to digital conversion of the readout data signals.

However, ***Bergquist*** does disclose a liquid crystal display device [*e.g., Fig. 2 & 4*] comprising:

a liquid crystal display panel [*e.g., Fig. 4: 100*] including

a plurality of pixels [*e.g., Fig. 5: 23*] and

a plurality of sensing parts [*e.g., Fig. 5: 114*],

each of the sensing parts having a light-sensitive switching device [*e.g., Fig. 13: phototransistor*] which is directly responsive to light and

each of the sensing parts generating an analog signal [*e.g., Fig. 6: 20*] including a location information [*e.g., touch location information*] in response to an incident light,

the location information indicating a location where the light enters; and

a control part [*e.g., Fig. 6: 132, 134*] receiving the analog signal and transforming the analog signal into a digital signal,

the liquid crystal display device being controlled in response to the digital signal (*see the entire document, including Column 2, Lines 20-56 and Column 4, Line 56 - Column 9, Line 37*).

Therefore, it would have been obvious to one having ordinary skill in the art at the time of invention to use ***Bergquist's*** analog-to-digital converter [***Bergquist****: Fig. 6: 134*] to convert ***Abileah's*** analog readout data prior to being sent to ***Abileah's*** processor [***Abileah****: 412 output*

signals to the processor], so as to transform the location information into a format suitable for processing.

Regarding claim 6, ***Abileah*** discloses each of the pixels includes

a gate line [*e.g., Figs. 2 & 13: Select*],

a data line [*e.g., Figs. 2 & 13: Data*],

a first switching device [*e.g., Figs. 2 & 13: latching transistor 200*] electrically connected to the gate line and the data line, and

a pixel electrode [*e.g., Fig 13: 402*] electrically connected to the first switching device (*see the entire document, including Column 5, Lines 4-30 and Column 12, Line 62 - Column 13, Line 42*).

Regarding claim 7, ***Abileah*** discloses the light-sensitive switching device is

a second switching device [*e.g., Fig 13: PhotoTFT*] that is turned on in response to the incident light to output a first analog signal [*e.g., Fig 13: Readout*] that is received from the data line,

each of the sensing parts further comprising:

a third switching device [*e.g., Fig 13: ReadoutTFT*] outputting the first analog signal provided from the second switching device in response to a second analog signal applied to the gate line; and

a first sensor line [*e.g., Fig 13: 414*] receiving the first signal from the third switching device and transmitting the first analog signal to the control part (*see the entire document, including Column 12, Line 62 - Column 13, Line 42*).

Regarding claim 8, ***Abileah*** discloses each of the sensing parts further comprises a second sensor line [*e.g., Fig 13: 408*] (*see the entire document, including Column 12, Line 62 - Column 13, Line 42*).

Regarding claim 9, ***Abileah*** discloses the second switching device includes

a first gate electrode diverging from the second sensor line,

a first source electrode diverging from the data line, and

a first drain electrode being electrically connected to the third switching device (*see the entire document, including Fig. 13; Column 12, Line 62 - Column 13, Line 42*).

Regarding claim 10, ***Abileah*** discloses the third switching device includes

a first gate electrode diverging from the gate line,

a first source electrode being electrically connected to the second switching device, and

a first drain electrode being electrically connected to the first sensor line (*see the entire document, including Fig. 13; Column 12, Line 62 - Column 13, Line 42*).

Regarding claim 11, ***Abileah*** discloses the first switching device, the second switching device and the third switching device each correspond to an amorphous-silicon thin film

transistor (*see the entire document, including Figs. 4A-4H; Column 5, Line 42 - Column 6, Line 9*).

Regarding claim 15, ***Abileah*** discloses the pixel electrode comprises

a transparent electrode [*e.g., Fig. 4G*] and

a reflective electrode [*e.g., Fig. 7: black matrix*] including

a transmission portion [*e.g., Fig. 7: opening in black matrix portion*] and

a reflection portion [*e.g., Fig. 7: black matrix portion*],

the reflective electrode facing the transparent electrode (*see the entire document, including Column 5, Line 42 - Column 8, Line 15 and Column 10, Lines 40-46*).

Regarding claim 16, ***Abileah*** discloses the reflective electrode comprises

an opening window [*e.g., Fig. 7: opening in black matrix portion*] uncovering the sensing part,

the incident light passing through the opening window and arriving at the sensing part (*see the entire document, including Column 6, Line 26 - Column 8, Line 15*).

Regarding claim 17, this claim is rejected by the reasoning applied in rejecting claim 3.

Regarding claim 20, ***Abileah*** discloses a sensor line,

a first source electrode and

a first drain electrode of the second switching device comprise

a transparent and electrically conductive material [*e.g., indium tin oxide*] (*see the entire document, including Figs. 4A-4H; Column 5, Line 42 - Column 6, Line 9*).

Regarding claim 21, this claim is rejected by the reasoning applied in rejecting claim 15.

Regarding claim 22, this claim is rejected by the reasoning applied in rejecting claim 16.

Regarding claim 23, ***Bergquist*** discloses the control part comprises:

a connecting part [*e.g., Fig. 4: 112, CPU*] to receive the analog signal and transform [*e.g., Fig. 6: via 134*] the analog signal into the digital signal in response to a first control signal;

a first driving part [*e.g., Fig. 4: 110*] to drive the liquid crystal display panel in response to a second control signal; and

a second driving part [*e.g., Fig. 4: 106*] to provide the connecting part with the first control signal and to receive the digital signal from the connecting part to output the second control signal (*see the entire document, including Column 2, Lines 20-56 and Column 4, Line 56 - Column 9, Line 37*).

Regarding claim 24, ***Bergquist*** discloses the first driving part is formed in a chip,

the chip being mounted on the liquid crystal display panel,

the chip having the connecting part therein (*see the entire document, including Column 4, Lines 18-31*).

Regarding claim 25, ***Bergquist*** discloses the first driving part and the connecting part are integrally formed in the liquid crystal display panel (*see the entire document, including Column 4, Lines 18-31*).

Response to Arguments

18. Applicant's arguments filed *10 November 2008* have been fully considered but they are not persuasive.

Applicant's arguments with respect to *claims 1-3, 5-11, 15-17, and 20-25* have been considered but are moot in view of the new ground(s) of rejection.

By such reasoning, rejection of the claims is deemed necessary, proper, and thereby maintained at this time.

Conclusion

19. The prior art made of record and not relied upon is considered pertinent to applicant's disclosure. The documents listed on the attached '*Notice of References Cited*' are cited to further evidence the state of the art pertaining to liquid crystal displays.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Jeff Piziali whose telephone number is (571)272-7678. The examiner can normally be reached on Monday - Friday (6:30AM - 3PM).

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Chanh Nguyen can be reached on (571) 272-7772. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see http://pair-direct.uspto.gov. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

/Jeff Piziali/
Primary Examiner, Art Unit 2629
21 May 2009